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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,321	10/03/2003	Olivier Grange	1362-03	2574

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EXAMINER

BUEKER, RICHARD R

ART UNIT PAPER NUMBER

1763

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,321

Applicant(s)

GRANGE ET AL.

Examiner

Richard Bueker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/27/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

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Claims 3-6, 9, 10, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 3, the phrase "the vapor outlet duct" lacks proper antecedent basis. In claim 4, the phrase "the duct on the enclosure" lacks proper antecedent basis. In claims 4 and 5, the phrase "the enclosure" lacks proper antecedent basis, and should be changed to "the exterior enclosure". In claim 5, it is unclear if the phrase "an input flange" is intended to refer to the same input flange that is recited in claim 1. In claim 6, "the end portion" should be changed to "an end portion". In claims 9, 10 and 12, the phrase "the enclosure" lacks proper antecedent basis, and it is unclear whether this phrase is intended to refer to the "exterior enclosure" recited in claim 1 or the "epitaxy enclosure" recited in claim 7 or some other enclosure. In claim 10, the phrase "the duct" lacks proper antecedent basis, and it is unclear if it is referring to the "outlet duct" recited in claim 1 or the "thermostated duct" of claim 7, or some other duct. In claim 12, the phrase "the connection duct" lacks proper antecedent basis and it is unclear if it refers to the "outlet duct" of claim 1, or the "thermostated duct" of claim 7, either of which can be described as a "connection duct between the enclosure and the tank". In claim 13, the phrase "the inclined connection" lack proper antecedent basis. In claim 13, the phrase "inclined by about 40 to about 45°" is indefinite because it fails to state what the recited angle of inclination is measured with respect to.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as obvious over Streetman (5,080,870) in view of Clampitt (5,681,535). Streetman (fig. 2, for example) discloses a tank for producing arsenic vapor comprising a crucible 16 inside an exterior enclosure 68 wherein a vacuum space is provided between the crucible and exterior enclosure, and the crucible has an outlet duct. Streetman does not explicitly state that the crucible has a flange. Clampitt (fig. 1 and col. 1, lines 1-5, for example) discloses a vapor source of the same type as Streetman. Clampitt teaches (figs. 1 and 2, for example) that the crucible can have a connecting flange, which can be properly described as “an input flange”. It would have been obvious to one skilled in the art to provide the apparatus of Streetman with a crucible having a flange of the type taught by Clampitt because Clampitt teaches (col. 4, lines 10-39) that his flanged crucible can successfully deliver the desired vapor, is easily attachable and detachable, and is desirably forgiving in the event of misalignment. In claim 1, the prefix “super” in “superheated” is a relative term and “superheated” as presently used is not distinguishable from “heated” in any practical or patentable way. Regarding claim 5, Streetman teaches that the walls of the exterior enclosure are cooled and therefore they would inherently act as a condensation zone. Regarding claim 6, it is noted that the terms “in a horizontal plane” and “a top part” are used loosely so as to read on the flange of Clampitt. Regarding claim 7,

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Streetman's epitaxy chamber communicates via a valve with the arsenic vapor source crucible. Also, the epitaxy chamber and the tank are decouably connected by flange 15 and duct 68 which is thermostated by cooling passageway 70. Cold water enters at 72 and exits at 74 after absorbing heat. Also, claim 10 reads on threaded bolts or screws to connect flange 15 to the epitaxy chamber, which would have been obvious. Claim 10 as presently written also reads on the threaded connection of the elbow 20 and the crucible 16. Further regarding claim 7, Clampitt's apparatus includes heating elements 36 which extend into the connecting duct that contains the elbow duct 2, and therefore the connecting duct (and also the elbow duct) are thermostated. Regarding claim 11, Streetman teaches (col. 8, lines 15-21) that his crucible can be placed with its central longitudinal axis in a vertical position, at least temporarily. Regarding claim 12, a segment of the vapor outlet tube in the epitaxy chambers of Streetman and Clampitt are perpendicular to an axis of the elbow connection duct of these references.

Regarding claim 13, Streetman teaches that his

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streetman (5,080,870) in view of Clampitt (5,681,535) for the reasons stated in the rejection of claim 7 above, taken in further view Matsuno (5,542,979) or Colombo (5,788,776), who teach that it is desirable to place a vapor source outlet at an angle in an epitaxy chamber, and it would have been obvious to use a vapor source of the type taught by Streetman and Clampitt in this manner.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuno (5,542,979) taken in view of Colombo (6,030,458) and Briones (5,482,892)

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and in further view of Nagashima (6,473,564) or Goldman (5,321,260). Matsuno discloses a vaporizer crucible for supplying a material such as phosphorous (see paragraph bridging cols. 7 and 8). The crucible is provided with an outlet duct.

Matsuno does not discuss a step of placing the crucible in an exterior enclosure that is a vacuum chamber, or the use of a flange. Colombo and Briones both also disclose phosphorous vapor sources, in which a phosphorous containing crucible is provided with an exterior enclosure that is a vacuum chamber. Colombo teaches (see figs. 1 and 3, col. 4, lines 1-10 and the paragraph bridging cols. 4 and 5) that the use of a vacuum jacket provides the advantage of preventing the phosphorous in the crucible from being contaminated by atmospheric pressure leaking into the compartment, and also desirably allows for a higher temperature bake-out of the crucible. Briones (see Fig. 6 element 56) also teaches the step of providing a vacuum chamber around a phosphorous vaporizer crucible. It would have been obvious to one skilled in the art to modify the apparatus of Matsuno by providing it with a vacuum jacket around the vaporizer crucible, to gain the advantages taught by Colombo. Regarding the use of a flange as recited in claim 1, Nagashima (see fig. 3) and Goldman (see the fig.) have been cited to illustrate the fact that it was well known in the prior art to attach a lid to a crucible by means of a flange. It would have been obvious to one skilled in the art to attach a lid for the crucible of Matsuno by means of a flange, because Nagashima and Goldman teach that a flange and a lid are desirable for providing access to a crucible. Regarding claim 7, it is noted that the connecting duct of Matsuno is thermostated.

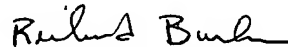
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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Richard Bueker
Primary Examiner
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